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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,408	03/31/2004	James R. Lattner	2002B139/2	5396

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ExxonMobil Chemical Company
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EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/814,408

Applicant(s)

LATTNER, JAMES R.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24 and 30-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24 and 30-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 20, 2006 has been entered.

Response to Amendment

2. Applicant's amendment submitted on June 20, 2006 has been received and carefully considered. The changes made to the specification are acceptable. Claims 1-23 and 25-29 are cancelled. Claim 33 is newly added. Claims 24 and 30-33 are under consideration.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 24 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirsch et al. (US 2,892,773) in view of Hofferber et al. (US 4,092,722) and Atkinson et al. (US 3,213,014).

Regarding claims 24 and 33, Hirsch et al. (FIG. 1) discloses an apparatus comprising: a feed line (residual hydrocarbon charge lines **30**) communicating with a riser reactor feed inlet (inlet lines **12**) to a riser reactor (reactor **10a**, **10b**), the riser reactor further comprising a riser reactor outlet (outlet lines **14**) for riser reactor effluent;

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a preheater (not shown) through which the feed line 30 inherently passes (i.e., "... the reactors

10a and 10b are maintained at a temperature... by *suitable preheating of the residual oil charged to the unit...*" column 5, lines 31-35);

a disengaging vessel (hopper 16) receiving the riser reactor effluent from lines 14, the

disengaging vessel 16 comprising a disengaging vessel outlet (via line 20) at an upper portion of the vessel for removing vapor;

a catalyst circulation line 26, 26a, 26b running downward from a lower portion of the

disengaging vessel 16 to a lower portion of the riser reactor 10a,10b;

a regenerator 40 comprising a lower inlet (line 42) for introducing a regeneration medium, an

upper outlet (line 44) for regenerator flue gas, said regenerator 40 further comprising a

first catalyst transport line (standpipe 38, communicating with line 59) running

downwardly from a lower portion of the disengaging vessel 16 to a regenerator catalyst

inlet, and a second catalyst transport line (well 53) extending downwardly from a

regenerated catalyst outlet and intersecting with a lift gas riser (defined by transfer line

58); said lift gas riser 58 having an upper outlet at the disengaging vessel 16 and a lower

lift gas inlet (line 64);

a regenerator catalyst circulating control valve 60 controlling the passage of catalyst from the

regenerated catalyst outlet of regenerator 40 to said lift gas riser 58; and

a catalyst circulation control valve (i.e., slide valves 28a, 28b) controlling the circulation of

catalyst from the disengaging vessel 16 to the riser reactor 10a,10b.

Although Hirsch et al. is silent as to the preheater being of the type that uses a flowing fluid

heating medium for at least partially vaporizing the feed, it would have been obvious for one of

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ordinary skill in the art at the time the invention was made to select such a preheater for vaporizing the feed in the apparatus of Hirsch et al., on the basis of suitability for the intended use, because the Examiner takes Official Notice that the use of preheaters having a flowing fluid heating medium (e.g., steam) for vaporizing feeds is well known in the art of heat exchange, and it has been held that the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Although Hirsch is silent as to the regenerator catalyst circulating control valve 60 being manipulated as a function of the riser reactor 10a,10b temperature, the apparatus of Hirsch meets the claims because the control valve 60 is structurally capable of being manipulated, and whether the manipulation is to be based on a function of the temperature of the riser reactor 10a,10b is merely a recitation of intended use. Furthermore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to manipulate the regenerator catalyst circulating control valve 60 as a function of the riser reactor 10a,10b temperature in the apparatus of Hirsch, because controlling the flow of regenerated catalyst from the regenerator to the riser reactor according to a measured temperature of the riser reactor allows for the automatic maintenance of an approximately constant temperature both in the riser and in the reactor vessel or regenerator bed, as taught by Hofferber et al. (column 2, lines 20-33). [Hofferber et al. (FIG. 1; column 4, line 30 to column 5, line 65) teaches an apparatus comprising a riser reactor (riser pipe 3, with a disengaging vessel portion 1) in communication with a regenerator (labeled as CATALYST REGENERATOR) via a catalyst transport line 8 comprising a regenerator catalyst circulating control valve 9 for controlling the passage of catalyst from the regenerator to the riser

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reactor 3 as a function of riser reactor temperature, as measured by a temperature sensor (thermocouple 13)].

In addition, although Hirsch is silent as to the catalyst circulation control valve 28a,28b being manipulated as a function of the difference in pressure between an upper portion of the riser reactor 10a,10b and a lower portion of the riser reactor 10a,10b, the apparatus of Hirsch meets the claim because the control valve 28a,28b is structurally capable of being manipulated, and whether the manipulation is to be based on a function of the differential pressure of the riser reactor 10a,10b is merely a recitation of intended use. Furthermore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to manipulate the catalyst circulation control valve 28a,28b as a function of the different in pressure between an upper portion of the riser reactor and a lower portion of the riser reactor in the apparatus of Hirsch, because the differential signal obtained from the pressure sensors makes it possible to calculate the total feed material flow rate through the riser, thereby automating the control of catalyst flow to the riser, as taught by Atkinson et al. (see column 3, lines 1-6). [Atkinson et al. (see Figure) teaches an apparatus comprising a catalyst circulation control valve 17 that is controlled by a pressure controller that integrates readings taken from an upper riser pressure sensor (50U) and a lower riser pressure sensor (50L) and controls the flow of catalyst into the riser.].

Regarding claims 30-32, as seen in FIG. 1 of Hofferber, temperature sensor 13 is located along a portion of the riser reactor 3, which appears to be at a point lying within the range of from about 30% to about 40% of the riser reactor length, as measured from the feed inlet 4 of the riser reactor 3, or at a location between about 20% to about 80% the axial length of the reactor 3. Although these range values are not specifically stated in the disclosure, it would have been

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obvious for one of ordinary skill in the art at the time the invention was made to select a suitable location for the temperature sensor in the modified apparatus of Hirsch et al., on the basis of suitability for the intended use, because the shifting of location of parts is obvious, and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

Response to Arguments

4. Applicant's arguments filed June 20, 2006 have been fully considered but they are not persuasive. Beginning at the last paragraph on page 6 of the response, Applicants argue,

“...The Hirsch device, however, differs from the claimed invention in that Hirsch does not have a regenerator catalyst circulation control valve capable of being manipulated as a function of riser reactor temperature. The Hirsch device further differs from the claimed invention in that Hirsch also does not have a catalyst circulation control valve that is capable of controlling circulation of catalyst from the disengaging vessel to the riser reactor as a function of the difference in pressure between an upper portion of said riser reactor and a lower portion of said riser reactor....

Hofferber was cited for disclosing a regenerator catalyst control valve that controls catalyst flow as a function of temperature. The Hofferber control valve, however, differs from Applicants' claimed invention in that the Hofferber valve does not disclose a regenerator catalyst circulation control valve that controls flow of catalyst from the regenerator outlet to a lift gas riser that has an upper outlet at the disengaging vessel. Instead, the Hofferber control valve is situated to control flow from the regenerator directly to reactor riser 3.”

The Examiner respectfully disagrees. Firstly, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231

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USPQ 375 (Fed. Cir. 1986). Secondly, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the secondary reference to Hofferber was merely relied upon to evidence the conventionality of providing a control scheme, e.g. for a regenerated catalyst control valve, that is based on a function of riser temperature. Such control scheme, for instance, would allow for the automatic maintenance of an approximately constant temperature both in the riser and in the reactor vessel or regenerator bed, as taught by Hofferber et al. (column 2, lines 20-33). The Examiner did not intend for the specific constructs of the apparatus of Hofferber to be wholly incorporated in the apparatus of Hirsch. Furthermore, claim 24 recites “said regenerator catalyst circulation control valve *being manipulated as a function of riser reactor temperature.*” Because no further control elements are claimed in conjunction with the circulation control valve (for instance, the recitation of a regenerator catalyst circulation control valve operatively linked to a temperature sensor or temperature controller, etc.), the manipulation of the valve as a function of riser reactor temperature has merely been recited as a process limitation or intended use. To illustrate, an apparatus simply comprising a control valve located on the regenerated catalyst passage could meet the claim because a human operator could determine the temperature of the riser reactor by measuring its temperature with a thermocouple, manually, and subsequently operate the control valve, manually, based on the temperature determination. A recitation of the intended use of the claimed invention must result in a structural difference

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between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.


Conclusion

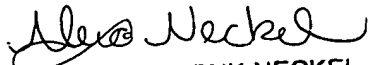
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung

September 28, 2006 


ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER